



University of Colombo, Sri Lanka

University of Colombo School of Computing



**DEGREE OF BACHELOR OF INFORMATION TECHNOLOGY
(EXTERNAL)**

Academic Year 2024 — 2nd Year Examination — Semester 4

IT4406 — Agile Software Development

Part 2 - Structured Question Paper

(2 Hours for both Part 1 and Part 2)

To be completed by the candidate

Index Number

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Important Instructions

- This paper has **two (2) parts, Part 1 and Part 2**.
- The total duration of **both Part 1 and Part 2 is 2 hours**.
- The final mark for the paper will be determined by averaging the scores of Part 1 and Part 2, each of which is graded out of **100**.
- The medium of instructions and questions is English. Students should answer in the medium of English language only.
- This paper (Part 2) has **2 questions on 8 pages**. Answer **both** questions.
- Write your answers **only on the space provided** on this question paper.
- Do not tear off any part of this question paper. Under no circumstances may this paper (or any part of this paper), used or unused, be removed from the Examination Hall by a candidate.
- Note that questions appear on both sides of the paper. If a page or part of a page is not printed, please inform the supervisor/invigilator immediately.
- Any electronic device capable of storing and retrieving text, including electronic dictionaries, smartwatches, and mobile phones, is not allowed.
- Calculators are **not allowed**.
- *All Rights Reserved*. This question paper can NOT be used without proper permission from the University of Colombo School of Computing.

To be completed by the examiners

1	
2	
Total	

Index Number

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1. A development team notices that at the end of each iteration, a significant number of bugs and integration issues emerge. Testing activities are typically postponed until the final stages of development, and code contributions from different team members frequently result in integration failures.

- (a). List down **three** specific practices or processes based on (or influenced by) Extreme Programming (XP) that could help address these issues.

[3x2: 6 marks]

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- (b). For **each** recommended practice or process in (1a), explain how it helps address the noted problems. Include concrete examples and expected outcomes.

[3x4: 12 marks]

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Index Number

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- (c). Identify and explain **three** indicators or metrics a team could use to assess whether newly introduced XP processes or practices are addressing problems such as frequent bugs and poor integration. **Note:** For this question, you can use your answers in (1a) or choose any other XP process or practice.

[3x3: 9 marks]

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Index Number

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- (d). Identify and explain **two** challenges a team might face when transitioning from a traditional (e.g., waterfall) based environment to working with XP practices or processes.

[2x4: 8 marks]

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- (e). Consider the paradigm shift proposed in the Agile Manifesto. Using these principles or values, explain how the noted problems in (1d) can be addressed using **three** specific examples.

[3x5: 15 marks]

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Index Number

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2. A Scrum team is working on a high-priority project that spans multiple sprints. The team is preparing for its next release and wants to ensure that its planning and sprint execution align with Agile values.
- (a). Identify **three** core planning principles in Scrum that contrast with traditional project planning. Briefly explain how **each** principle can help the team described above reduce waste or increase responsiveness.

[3 × 3 = 9 marks]

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Index Number

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(b). The team is planning its next release. The Product Owner suggests using a fixed-date release approach.

i. Outline **four** key steps involved in performing fixed-date release planning.

[12 marks]

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ii. How does a fixed-date release approach help the team forecast “*will-have*” and “*might-have*” features?

[6 marks]

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Index Number

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(c). The company also wants to ensure that the overall product strategy is aligned with business value delivery.

i. What is the purpose of Portfolio Planning in Scrum?

[3 marks]

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ii. Name and describe **two** inflow or outflow strategies (one each) used in Portfolio Planning.

[8 marks]

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Index Number							
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- (d). A retrospective revealed that during sprint execution, progress tracking was inconsistent. Name **two** visual tools that teams can use during sprints to communicate and manage work progress. Using clear examples, explain how each tool contributes to better sprint outcomes (i.e., highlight the impact).

[12 marks]
